

Out of Focus

By AE2(AW) David Glenn, VAQ-139

Three weeks underway on board USS *John C. Stennis* (CVN-74), our AE shop was troubled by a very perplexing gripe on NK 501. Each time the angle-of-attack (AOA) transmitter rotated to give a red indexer light, all the annunciator caution lights would illuminate in the aircraft. We did all the readings we could and determined we needed to try parts.

We began with a known good AOA transmitter we robbed from NK 502 after discussion with maintenance control. While still pondering and tinkering, I sent two airmen to pull the transmitter from 502. Transmitters were simple to pull and install. We each had experience with numerous transmitters. In very little time, the airmen returned, and I patched the new transmitter into 501—no luck.

My mind was so centered on the gripe I became unaware of much else around me. I vaguely recall telling the guys to throw the transmitter back into 502, and I continued with my troubleshooting. After what may have been considerable time, while I was neck-deep in the cockpit, playing with wire bundles, the

airmen returned and told me the transmitter was put back. I responded by telling them to get an annunciator panel from NK 500. They obliged, and we played the parts game, much to the annoyance of maintenance control.

At some point, I needed a break and decided to CDI the transmitter on 502 and various other parts we unsuccessfully had tried. I took along an airman to go through the checks with me, not bothering to get the book first. Numbers are right; it checked good, and it even looked good. I could see the guide pins for the index ring snugly fit into their holes. It didn't occur to me that I should refer to the book to make sure I had checked everything for the transmitter's install. This job was the next thing up from a light bulb in parts changes.

My shift ended much sooner than I expected. I didn't write a pass down; instead, we had an on-aircraft turnover.



Photo by PH3 William K. Fletcher

I was anxious to see if day-check had had any luck when my shift rolled around again. They hadn't, but they felt they had a lead on it. At some point, aircraft 500 also had developed a problem in its AOA system, and, to top it off, so had aircraft 502. They were separate gripes, but gripes come in threes, so none of us were surprised. NK 500 had no AOA lights at all, and 502's AOA pegged to 30 units off the catapult and stayed that way until after recovery. Even the transmitters input to the A/D converter matched the indicator on 502, which narrowed the problem and pinpointed its culprit easily enough—the transmitter.

I was going to fix 501—I was determined. I directed my two airmen and a second class AE to look at 502's transmitter. Later, I heard they had ordered a transmitter—of course. On 500, they had ordered an indicator.

On 501, I was clueless—nothing made sense. I had the entire AOA system's schematics memorized by this point. I was feeling burnt out, but nothing would take my attention away from it. I pondered the situation with some fellow AEs. They talked, but I didn't listen—I was in my own world.

At some point, the other guys had finished putting in the newly received transmitter and grabbed me to CDI it. I dreamily wandered over to 502 at some point and inspected it. The index ring was snugged onto guide pins, and all lights came on at the right time. Good to go; no book needed for this easy check. I signed off the transmitter gripe and went back to 500, where they were installing the new indicator.

I overheard one of the airmen saying that, when he checked AOA on 500 with the new indicator installed, all the caution lights came on with the red indexer lit. I came to life quickly when I heard that news, and nothing mattered to me more at that point than figuring out how 501's gripe, which was tormenting me, also had

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popped up on 500. Day-check would flip if they came in and two jets were down for something we could not find the answer to. I began finding the common puzzle pieces between 500 and 501. I fixated. We had tried each part that mattered in the system, and nothing fixed it, but if it hopped jets, then it had to be part-related.

After talking to my supervisor, we agreed something was burning up something else, and it must involve two, possibly three parts. Some things my supervisor had said began making sense to me. I was sure we had fried the diode of the red index leg inside the annunciator panel, which allowed power to feed back through to the other lights. The part was fried after it had been in 501. By the time day-check had come in, we had 500 fixed, and I was exhausted. We thought we were in good shape, until NK 502 came back down because its AOA had pegged to 30 units off the cat stroke. Day-check had other things to deal with, so the gripe came back to night-check again.

I was stumped. The transmitter, schematically, is all that could cause this. I decided to look at another aircraft's angle-of-attack index setting, which I compared to 502's setting. They were both at 19 units, but 502's setting was on the wrong side of zero. That's



a 40-unit difference in angle-of-attack. I began taking out the transmitter and could feel my throat tightening up because I already knew what I would find.

The transmitter has two guide pins, which go through the lip of the case and stick out on the back and front. The front pins are for the index ring to sit on; the backside pins are for the transmitter to be seated into the aircraft properly. These pins were not sticking out on the back—they were completely flush. By this point, my heart was pounding rapidly, and I was red with anger at myself.

I tapped down the pins and properly seated the transmitter, then stopped to call a CDI. He came up with the book and did a proper look-over as I installed the transmitter. It now was installed and CDI'ed properly.

I was upset with myself and knew I was in for it when I told maintenance control. I didn't give them a bull story but, instead, explained I had improperly inspected the installation of the transmitter the last two times. In fact, we had created the discrepancy from the start and had forced the pilots to land on the ship with no angle-of-attack input—twice.

I spent a lot of time contemplating how I had failed to do my job right, and, with input from my shop, we determined it came down to tunnel vision. I had allowed nothing else to be as important as the gripe I was obsessing over. When I CDI'ed a job, I wasn't thinking about what I was looking at; I still was rolling schematics through my mind for another gripe. Even though I found the mistake I had made, my head wasn't in the game. To top it off, as 502 prepared to fly and aircrew were given a big assurance from the AEs the AOA gripe would not come back, the aircraft went down for AOA again. We lost that sortie before an AE really had a chance to hop up there to discover the plug wasn't completely on the indicator.

The disappointment of my poor performance, and the question of how much confidence the aircrew may have lost in me have been punishment enough to keep me focused and alert. I'll never repeat the problem. I'm an excellent maintainer and a diligent CDI, so my pride was deeply affected by my carelessness. I was embarrassed. I now try to step back and take a breather when my head isn't in the game. Training, better communication, and watching out for one another when we're not focusing is key. And, don't forget the books. 

High Is Low

By AM1(AW) John Elmore, VFA-151

It was a Thursday just before a three-day weekend. I was short-handed because of the leave period, with only a few junior personnel. At the morning meeting, the maintenance chief told me he wanted 306 ready for Monday's flight schedule. The aircraft had a momentary unsafe tone for the landing gear upon landing, and, based on previous gripes of unsafe-gear indications, our squadron was troubleshooting these occurrences as unsafe gear. In each case, we jacked up the jet, serviced the landing gear, and did a thorough visual inspection of all landing-gear components.

I printed out the publications and handed them to my third class. I had complete confidence in his doing the FA-18C strut-servicing because he had done this task dozens of times with assistance.

After catching up on my paperwork, I went to the aircraft to check on the third class. He asked if I would operate the NAN cart because he didn't have a license. After double-checking the pubs for the correct pressures, I pressurized the lines with nitrogen while he serviced the shock struts. Because of the position of the NAN cart, I only could see his back. Then it was time to perform the operational test of the landing gear. Late afternoon was upon us, and the entire maintenance department was waiting for us to finish before we could all secure.

With pub in hand, we supplied the jet with hydraulic and electrical power and began the operational check. I told the person in the cockpit to select gear up. The hydraulic jenny groaned as it began forcing 3,000 psi to the actuators. Suddenly, we heard something snap. A thousand thoughts raced through my mind in a split second. What could have gone wrong? One phrase seemed to stand out in my mind. From the time I first had started working on Hornets, I always had heard, "High is low, and low is high."

On FA-18C landing gear, the top servicing port must be filled with low-pressure nitrogen, and the bottom servicing port must be filled with high pressure. After I checked the gauge on the struts, I knew where we had gone wrong. My AM3 had serviced them backward, which resulted in the shrink link breaking